

NAME P/N QTY	CRIT	FAILURE MODE & CAUSES	FAILURE EFFECT	RATIONALE FOR ACCEPTANCE

		138FM01A		
PRESSURE TRANSDUCER, FEEDWATER ITEM 138 ----- SV767793-6 (1)	2/2	Drifts high or full scale. Stress relief of the bellows with time.	END ITEM: False, high, indication of airlock pressure.	A. Design - -2 and -6 Conrac and -8 Gulton: The sensing element is made of an all welded solution hardening Inconel diaphragm to maximize strength and reduce any shift due to over stressing it. All linkage/resistive element attaching screws are potted in place to prevent shifting. The assembly is vacuum outgassed and temperature cycled until stable.
PRESSURE TRANSDUCER, FEEDWATER, ITEM 138 ----- SV767793-8 (1)		Failure of the potentiometer linkage due to increased friction. Mechanical shock loading of the linkage which causes a misalignment of the resistive element relative to the wiper.	GFE INTERFACE: The H2O GP and H2O WP values would read lower than the actual pressure. If H2O gas pressure is less than 13.5 psia, CWS will issue a H2O GP LOW warning message.	B. Test - Component Acceptance Test - The sensor is subjected to random vibration (6.1 grms) testing to insure there are no workmanship or material problems that would cause the voltage to shift high. The sensor is subjected to calibration testing at high and low temperature (30 to 120 deg F) to insure there are no defects that thermal expansion/ contraction would uncover. The sensor is calibration checked during acceptance testing to insure sensor is stable. PDA Test - The sensor is calibration checked at 0 psig as assembled on the PLSS to insure the output voltage is within spec limits per SEMU-60-010, Test 27 and 35. Certification Test - Certified for a useful life of 20 years (ref. EMUM1-0084).
			MISSION: Loss of use of one EMU.	C. Inspection - Conrac: a. The sensor is visually inspected prior to case assembly to insure there are no workmanship problems which could cause the output voltage to shift high. b. The sensor is calibration checked at various steps in the assembly process to insure the sensor output is within specified limits.
			CREW/VEHICLE: None.	
			TIME TO EFFECT /ACTIONS: Seconds.	Inspection (Continued) - Gulton: a. The sensor is visually inspected prior to case assembly to insure there are no workmanship problems which could cause the output voltage to shift high. b. The sensor is calibration checked in the assembly process to insure the sensor output is within specified limits. c. The sensor is pressure cycled for at least 350 cycles during assembly to insure the sensor is stabilized. The sensor is temperature cycled between -65 deg F and +200 deg F to insure it is stable.
			TIME AVAILABLE: N/A	
			TIME REQUIRED: N/A	D. Failure History - The following RDR's were issued for Item 138 due to the output voltage drifting high: EMU-138-C001 (8-28-79) Failed calibration check high but failure could not be repeated.
			REDUNDANCY SCREENS: A-N/A B-N/A C-N/A	J-EMU-138-C001 (10-8-80) Pressure indicated a high PLSS level due to high liquid vapor. Class I EC 42803-267 was issued to increase the CWS from trip point level to 1.0 psi. This change was certified.
				E. Ground Turnaround - Tested for non-EET processing per FEMU-R-001, Transducer and DCM Gage Calibration Check. FEMU-R-001 Para 8.2 EMU Preflight KSC Checkout for EET processing.
				F. Operational Use -

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Crew Action -
PreEVA: No constraint, continue EVA prep. Use other EMU to monitor airlock pressure.
PostEVA: N/A.
Training: Standard EMU training covers this mode.
Operational Considerations -
EVA checklist procedures verify hardware integrity and systems operational status prior to EVA.

EXTRAVEHICULAR MOBILITY UNIT
SYSTEMS SAFETY REVIEW PANEL REVIEW
FOR THE
I-138 FEEDWATER PRESSURE SENSOR
CRITICAL ITEM LIST (CIL)

EMU CONTRACT NO. NAS 9-97150

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